1875MNRAS..35R.167.

tion with the Chronometer Department of the Royal Observatory. He died at Laira, near Plymouth, on April 19, 1874, in the eighty-eighth year of his age.

Peter Andreas Hansen* was born at Tondern, a town on the river Widau, in the Duchy of Schleswig, on December 8, 1795. His father was a goldsmith of that town, generally esteemed by his fellow-citizens for his integrity and benevolence, but in somewhat straitened circumstances, so that he could not afford to give his son, who showed an early and decided inclination for scientific pursuits, the education and instruction corresponding to his wishes. Young Hansen was thrown therefore in these respects very much upon his own resources. He spent much of his time after school hours in studying French and Latin, chiefly by the aid of books lent him from time to time by different friends. For mathematics and the physical sciences he exhibited an intense interest, constructing for himself the apparatus which he found useful in their acquisition so far as his means and opportunities allowed. But seeing no prospect of being able to carry out his ardent desire of entering on a scientific career, he resolved, as he grew older, to become master of the art of clock-making, an occupation in which he thought the knowledge he had obtained would be most usefully applied. With this view he joined himself to a skilful clock-maker at Flensburg, and soon showed a very considerable amount of skill and cleverness in the art. During this time he continued to spend his leisure, and frequently great part of the night, in prosecuting his scientific studies, without any assistance, and entirely self-directed. Becoming dissatisfied, however, with this occupation, in consequence of an irresistible impulse to devote himself to the sciences, he once more earnestly requested his parents to procure him the means of going to a university. He was informed that this request could not be granted; and many letters still exist, stating his deep grief at this, accompanied with expressions of the sincerest filial respect and affection for his parents. In the year 1818, having finished serving his time at Flensburg, he went by way of Tondern to Berlin, where he worked for a year with a clock-maker. Afterwards he returned to his native town, and set up a clock-making establishment at his father's house. Here he happened to make in the following year (1820), in consequence of the illness of his sister, the acquaintance of Dr. Dirks, a physician, a man who united mathematical pursuits with his professional duties. He recognised the talents of young Hansen, and succeeded at last in inducing his father to consent to his travelling to Copenhagen, and introducing himself to Professor

---

* The Council are indebted to M. Hansen, of Gotha, son of the late Professor Hansen, and to Madame de Mädler, of Hanover, for their courtesy in supplying, at the request of one of the Secretaries, many interesting particulars relating to the lives of Professors Hansen and Mädler.

1875MNRAS..35R.167.

Schumacher, who had the disposal of an appointment as calculator.

He made the journey accordingly, but when he arrived there, the post in question had been already filled up. Professor Schumacher, however, appreciated the young man's abilities, and recommended him to present himself to the king. After several audiences, he at last obtained permission to accompany Professor Schumacher in his measurement of an arc of the meridian in Holstein, but at his own expense. In the beginning of the year 1821 he worked at the calculations connected with this measurement in his native town; after which he was summoned by Schumacher to Copenhagen, and obtained for that year a salary and allowance from the Danish Government.

From 1821 to 1825 Hansen continued to act as assistant to Professor Schumacher, chiefly at Altona, where the king had had an observatory built for him, and where he spent most of his time, whilst still discharging the duties of Professor of Astronomy at Copenhagen. In the summer of 1824 he made an expedition to Heligoland, to determine the geographical position of that island. Here Hansen accompanied him, and determined the latitude at a small temporary observatory, by Bessel's method, with a Repsold transit instrument adjusted in the prime vertical. The English Government at the same time sent a vessel, with twenty-eight chronometers, to that place, for the purpose of determining the longitude from Greenwich; this commission being entrusted to Dr. Tiarks. The whole of the subsequent correspondence between Schumacher and Hansen proves their intercourse to have been of an intimate kind. The former commenced, in 1823, editing at Altona the *Astronomische Nachrichten*, which was published there until its recent removal to Kiel. Its early numbers contain numerous observations made by Hansen at Altona.

In 1825 Hansen's connection with Schumacher ceased, he being appointed to succeed the late Professor Encke as Director of the Observatory of Seeberg, near Gotha. That establishment was transferred in the year 1859 to the Erfurt suburb of the town of Gotha, on the east side of the Jägergasse, and on the north bank of the Leina Canal. Arrangements were made on this occasion for adapting the instruments to the improved methods of observing; a new Repsold equatoreal, with 6-foot telescope and 2-foot circle, being presented by the Duke, and a chronograph introduced for galvanic registration of transits. Hansen remained at the head of this establishment during the rest of his life, a period of about fifteen years, notwithstanding numerous offers made to him at different times from other places, several of which held out the prospect of considerable material advantages.

His own labours were chiefly in the department of physical astronomy, and are too well known to need a detailed description of them here, particularly as they have twice received the award of our own gold medal, in 1842 and 1860, on which occasions

1875MNRAS..35R.167

respectively Lord Wrottesley and the Rev. R. Main gave very full accounts of the very important works which gained so emphatic an approval. The former of the two was principally in recognition of the masterly investigation of the mutual perturbations of *Jupiter* and *Saturn*, which, published in 1831, had already obtained the author the prize of the Royal Academy of Sciences of Berlin for that year. In acknowledging the medal of 1842, Hansen spoke of the "considerable advance" of his labours in the lunar theory, which had been also mentioned. Those labours occupied a considerable part of his time for many subsequent years; and in 1857 the lunar tables formed from the theory were published in London, at the expense of the British Government, under the author's own care, who was the guest of the Astronomer Royal at Greenwich whilst superintending their publication. The latter remarked in regard to them, on comparing a number of results obtained by their use with those given by the tables (Burckhardt's) previously employed, "Probably in no recorded instance has practical science ever advanced so far by a single stride." From that time Hansen's Lunar Tables have been used in the *Nautical Almanac* calculations, and therefore implicitly in those of the *Berliner Jahrbuch*, and other ephemerides. It is no discredit to them to say (for progress leads to a similar consequence with all human labours), that astronomers are now looking forward to their being superseded by tables still further superior in accuracy and construction. The theoretical investigations, on which they were founded, were published at Leipzig, in two parts, in 1862 and 1864. In September 1860, through the representation of the Board of Visitors of the Royal Observatory, Professor Hansen received a grant of 1,000*l*. from the British Government, as an acknowledgment of his labours in connection with the preparation of his Lunar Tables.

His curious and interesting theory of the figure of the Moon is well known, and is published in the 24th volume of our own *Memoirs*. The conclusion he arrived at (which has, however, been controverted) was that her centre of gravity does not coincide with her centre of figure, but is in a line with it on the farther side from that turned towards the Earth; a consequence of which would be, that all the air and water on the Moon (supposing any to exist) might be collected on the side which is never visible to us, making that side alone perhaps habitable.

Besides his larger works, Hansen was the author of a considerable number of detached papers, principally on points in perturbational astronomy, and on the orbits of comets and small planets. On one occasion he was engaged in rather a sharp controversy with Encke, on the accuracy of some tables of *Flora*, published at Berlin. He was a frequent contributor to the *Memoirs* of the Saxon Society of Sciences (of which he was a member), and other publications.

Professor Hansen breathed his last without suffering on the 28th of March last, in the seventy-ninth year of his age. He had been elected one of our Associates in the year 1837. W. T. L.